REMARKS/ARGUMENTS

Claims 1-64 are pending in the present application. Claims 1, 16, 17, 32, 33, 48, 49, and 64 were amended. Support for the revisions to claim 1, 17, 33 and 49 may be found on pages 7-12. Support for the revisions to claims 16, 32, 48, and 64 may be found on page 8, line 10. Reconsideration of the claims is respectfully requested.

I. Interview

On Monday, November 13, 2006, Applicants' attorney conducted an interview with Examiner Angela Lie in which the Examiner indicated that she found elements of claim 1 unclear. While Applicants do not agree that the Examiner's arguments have merit, Applicants nonetheless made amendments to claim 1 to further clarify the claims. Applicants faxed a copy of amended claim 1 to the Examiner on November 15, 2006. On Monday, November 20, 2006, the Examiner called Applicants and acknowledged that the amended claim will overcome the 35 U.S.C. 112 rejection.

II. 35 U.S.C. § 112, Second Paragraph

The Examiner had rejected claims 1, 17, 33 and 49 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which Applicants regard as the invention. After reviewing the amended claim 1 which Applicants proposed, the Examiner indicated that amended claim 1 overcomes the 35 U.S.C. § 112 rejection of claim 1.

Amended claim 1 is as follows:

1. A method for extracting data from a data store comprising a first set of one or more data items, the method comprising the steps of:

creating a selected set comprising a second set of one or more data items in accordance with a selection rule;

creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule;

responsive to a determination that an intersection of the selected set and the profile set is non-empty, extracting a fourth set of one or more data items from the data store in accordance with the selection rule; and

responsive to a determination that the intersection of the selected set and the profile set is empty, providing an indication that the data store does not include data items in the selected set.

Applicants offer two examples to show how amended claim 1 may be used to extract data from a data store.

Example 1

The Examiner is directed to Figure 1 and the description starting on page 6, line 24. The example below is taken directly from the Detailed Description, starting on page 7. The *profile rule* is a logical rule which describes the items in data store. Detailed Description, page 7, lines 22-23. The *profile set* is a set of all possible data items which satisfy the profile rule. Detailed Description, page 9, lines 3-4.

data store = {5, 7, 9} *first set.*

profile rule = $(x \geq 5) \wedge (x \leq 9)$

profile set = {5, 6, 7, 8, 9} *third set.*

The *selection rule* is a logical rule which specifies the data items which are to be extracted from the data store. Detailed Description, page 8, lines 22-24.

selection rule = $x > 8$

selection set = {9, 10, 11, 12 ...} *second set.*

Therefore, in this example, the intersection of the profile set and the selection set is:

profile set $\wedge$ selection set = {5, 6, 7, 8, 9} $\wedge$ {9, 10, 11, 12 ...} = {9}

Because the set {9} is non-empty, the selection rule, $x > 8$, is used to extract a fourth set from the data store. In this example, the *fourth set* is therefore {9}.

The selection rule is applied twice, first to create the selection set and a second time to extract the fourth set. The following example, Example 2, is given to illustrate why the selection rule is used twice.

Example 2

data store = {5, 7, 9} *first set*

profile rule = $(x \geq 5) \wedge (x \leq 9)$

profile set = {5, 6, 7, 8, 9} *third set*

selection rule: $x > 7$

selection set = {8, 9, 10, 11 ...} *second set*

The intersection of the profile set and the selection set:

{5, 6, 7, 8, 9} $\wedge$ {8, 9, 10, 11 ...} = {8, 9}

Here the set {8, 9} is non-empty and the selection $x > 7$ is then used to extract a fourth set from the data store. In this example, the *fourth set* is {9}. Note how in this example, unlike example 1, *the fourth set is different than the intersection of the profile set and the selection set.*

Based on the above examples, Applicants respectfully submit that the invention of amended claim 1 is not indefinite and does particularly point out and distinctly claim the subject matter. Claims 17 and 33 claim a computer program product implementing the method of claim 1. Similarly, claim 49 claims an apparatus implementing the method of claim 1. Claims 17, 33, and 49 have been amended in a manner similar to claim 1. Therefore, the same arguments made for claim 1 can also be made for claims 17, 33, and 49. Consequently, Applicants respectfully urge that the rejection of claims 1, 17, 33, and 49 under 35 U.S.C. § 112, second paragraph has been overcome.

III. 35 U.S.C. § 102, Anticipation

The Examiner rejected claims 1, 8-13, 15-17, 24-29, 31-33, 40-45, 47-49, 56-61, 63 and 64 under 35 U.S.C. § 102(e) as being anticipated by *Kothuri et al.*, Relational Database System for Storing Nodes of a Hierarchical Index of Multi-Dimensional Data in a First Module and Metadata Regarding the Index in a Second Module, U.S. Patent No. 6,505,205 (January 7, 2003) (hereinafter "*Kothuri*"). This rejection is respectfully traversed.

The Examiner states:

> 8. Claims 1, 8-1 3, 15 -17, 24-29, 31-33, 40-45,47-49, 56-61, 63 and 64 are rejected under 35 U.S.C. 102(e) as being anticipated by Kothuri et al (US Patent 6505205).
>
> As to claims 1, 17, 33 and 49, Kothuri teaches a method and apparatus for selecting data set in accordance with a selection rule (column 13, lines 65-67), comprising the step of: creating a profile of the data store (column 14, line 1, wherein previously selected dimension is also part of data store, since it comprises the items that are part of the main data store), the profile comprising a profile rule defining a profile set (in order to sort the items as disclosed in paragraph 14, line 1, it is necessary to have a certain rule or criteria based on which the elements would have to be sorted), wherein the profile set comprises a third set of one or more data items in accordance with the profile rule (column 14, lines 2-4); responsive to a determination that there is a non-empty intersection of the selected set and the profile set (if the search result is returned then it means that the set was non-empty), extracting a fourth set of one or more data items from the data store in accordance with the selection rule (column 13, lines 46 and 47, and column 14, lines 7-20); and responsive to a determination that there is not non-empty intersection of the selected set and the profile set (if there is no result returned, then it is also an indication the set was empty), providing an indication that the data store does not include data items in the selected set (i.e. no result returned).

Office Action, dated September 8, 2006, pages 3-5.

Amended claim 1 is as follows:

> 1. A method for extracting data from a data store comprising a first set of one or more data items, the method comprising the steps of:

creating a selected set comprising a second set of one or more data items in accordance with a selection rule;

creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule;

responsive to a determination that an intersection of the selected set and the profile set is non-empty, extracting a fourth set of one or more data items from the data store in accordance with the selection rule; and

responsive to a determination that the intersection of the selected set and the profile set is empty, providing an indication that the data store does not include data items in the selected set.

Regarding claim 1, *Kothuri* fails to teach the claimed step of creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule. The Examiner asserts otherwise, citing the following portion of *Kothuri*:

2.2 Sort the data items in the selected dimension
2.3 Divide the data items, possibly to yield an (approximately) equal number of data items in each subset or, as one alternative, in a manner that yields a number of data subsets one or more of which will fit into individual leaf nodes.

Kothuri column 14, lines 1-4.

Kothuri recites a system and method for indexing and storing multi-dimensional or multi-attribute data. *Kothuri*, Abstract. Data items are recursively sorted in a dimension having the greatest variance and divided until each subdivision fits into a leaf node having a specified fanout. *Kothuri*, Abstract. The passage cited by the Examiner is two steps of an algorithm for clustering multi-attribute data items for leaf nodes of an R-tree index. *Kothuri*, column 13, lines 39-40.

Neither sorting data items in a selected dimension nor dividing data items is related to creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule. Neither the cited passage, nor any other part of *Kothuri* teaches creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule. In fact, the word "profile" does not appear anywhere in *Kothuri.* Thus *Kothuri* does not teach at least one feature of claim 1. Accordingly, *Kothuri* does not anticipate claim 1.

Moreover, neither this nor any other portion of *Kothuri* states that sorting and dividing data items is equivalent to creating a profile. Nor does the reference suggest how sorting and dividing data items would be equivalent to creating a profile. Accordingly, *Kothuri* does not anticipate claim 1.

Because claims 8-13 and 15-16 depend from claim 1, the same distinctions between *Kothuri* and the invention of claim 1 may be made for these claims. Additionally, claims 8-13 and 15-16 claim other additional combinations of features not suggested by the reference. For example, claim 9 recites a

hierarchical database, whereas *Kothuri* is concerned only with a *relational* database system for storing nodes. *Kothuri*, Title. Consequently, it is respectfully urged that the rejection of claims 1, 8-13, and 15-16 has been overcome.

Claims 17, 24-29, and 31-32 claim computer program products implementing the methods of claims 1, 8-13, and 15-16. Therefore the same distinctions between *Kothuri* and the invention of claims 1, 8-13, and 15-16 can be made for claims 17, 24-29, and 31-32. Consequently, it is respectfully urged that the rejection of claims 17, 24-29, and 31-32 has been overcome.

Claims 33, 40-45, and 47-48 claim computer program products for implementing the methods of claims 1, 8-13, and 15-16. Therefore the same distinctions between *Kothuri* and the invention of claims 1, 8-13, and 15-16 can be made for claims 33, 40-45, and 47-48. Consequently, it is respectfully urged that the rejection of claims 33, 40-45, and 47-48 has been overcome.

Claims 49, 56-61, and 63-64 claim apparatus for implementing the methods of claims 1, 8-13, and 15-16. Therefore the same distinctions between *Kothuri* and the invention of claims 1, 8-13, and 15-16 can be made for claims 49, 56-61, and 63-64. Consequently, it is respectfully urged that the rejection of claims 49, 56-61, and 63-64 has been overcome.

Therefore, the rejection of claims 1, 8-13, 15-17, 24-29, 31-33, 40-45, 47-49, 56-61, 63 and 64 under 35 U.S.C. § 102 has been overcome. Furthermore, *Kothuri* does not teach, suggest, or give any incentive to make the needed changes to reach the presently claimed invention.

Kothuri actually contains the very problem that the present invention is directed towards solving. *Kothuri* recites a relational database system for storing nodes of a hierarchical index of multi-dimensional data. *Kothuri*, Title. When a query is made to extract data from *Kothuri's* relational database, the query must search the entire database and determine whether each item in the database matches the query, even if the database contains no matching items. In contrast, the present invention solves this problem, because if the intersection of the selected set and the profile set is empty, an indication that the data store does not include data items in the selected set is provided as claimed.

IV. 35 U.S.C. § 103, Obviousness

IV.A. The Examiner Has Failed to State A *Prima facie* Obviousness Rejection

If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to the grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985). A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26

U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995); *In re Bond*, 910 F.2d 831, 834, 15 U.S.P.Q.2d 1566, 1568 (Fed. Cir. 1990).

IV.A.1. Claims 2-7, 18-23, 34-39, and 50-55 are Not Obvious

The Examiner has rejected claims 2-7, 18-23, 34-39, and 50-55 under 35 U.S.C. § 103(a) as being unpatentable over *Kothuri* in view of *Asherman,* Database Communication System and Method for Communicating with a Database, U.S. Patent No. 6,738,775 (May 18, 2004) (hereinafter "*Asherman*"). This rejection is respectfully traversed.

The Examiner states:

> 10. Claims 2-7, 18-23, 34-39, and 50-55 are rejected under 35 W .S.C. 103(a) as being unpatentable over Kothuri et al (US Patent 6505205) in the view of Asherman (US Patent 6738775). Kothuri teaches all the limitations disclosed in claims 1, 17, 33 and 49, however he does not explicitly teach that the first data set comprises numeric, string, date, graphical, sound and video data. Asherman teaches a database communication system wherein the database supports all of the above listed file types (column 7, lines 61 and 62; column 11, lines 24-29). It would have been obvious to one of the ordinary skill in the art during the time the invention was made to store any or all of the above listed file formats in the database, because all those file type are very well known in the art and there often is a need for storing those file in well organized data set (database).

Office Action, dated September 8, 2006, pages 5-6.

IV.A.2. The Proposed Combination Fails to Teach All of the Features of the Dependent Claims at Least By Virtue of their Dependence on the Independent Claims

The obviousness rejections are predicated upon the assertions made with respect to *Kothuri*. As shown above, the underlying assertions made by the Office Action regarding *Kothuri's* teachings are incorrect *vis-à-vis* the independent claims. Specifically, *Kothuri* does not teach the feature of creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule, as recited in the independent claims. For this reason alone, *Kothuri* does not teach all of the features of claims 2-7, 18-23, 34-39, and 50-55, at least by virtue of their dependence on the independent claims.

Similarly, *Asherman* does not teach the feature of creating a profile of the data store, the profile comprising a profile rule defining a profile set, wherein the profile set comprises a third set of one or more data items in accordance with the profile rule, as recited in the independent claims, nor does the

Office Action point to any specific portion of *Asherman* which does. For this reason, *Asherman* does not teach all of the features of claims 2-7, 18-23, 34-39, and 50-55, at least by virtue of their dependence on the independent claims.

Therefore, the proposed combination of these references when considered together as a whole does not teach or suggest all of the features of claims 2-7, 18-23, 34-39, and 50-55. For this reason, the Examiner has failed to state a *prima facie* obviousness rejection against claims 2-7, 18-23, 34-39, and 50-55.

IV.A.3. The Examiner Has Failed to State Proper Motivation to Combine the References

In combining *Kothuri* and *Asherman*, the Examiner states:

> It would have been obvious to one of the ordinary skill in the art during the time the invention was made to store any or all of the above listed file formats in the database, because all those file type are very well known in the art and there often is a need for storing those file in well organized data set (database).

Office Action dated August 3, 2006, page 6.

This statement is not a proper motivation to combine the references or to further modify the proposed combination to reach the present invention of claims 2-7, 18-23, 34-39, and 50-55. Instead, the Examiner has only stated a proposed advantage to combining the two cited references. An advantage cannot be substituted for a motivation to combine references because an advantage is not necessarily a motivation. Just because modifying or combining the references is advantageous does not mean a motivation exists to perform the modification or combination.

To constitute a proper teaching, suggestion, or motivation, the Examiner must establish that one of ordinary skill would both recognize the advantage and have a reason to implement the advantage. For example, a first reference may disclose the use of lasers to achieve nuclear fusion. A second reference may disclose that ultra-high power lasers deliver more energy. One of ordinary skill may recognize that an ultra-high power laser would be more useful to achieve nuclear fusion. However, one of ordinary skill would be motivated to avoid combining the references because of the extreme expense of ultra-high power lasers. In this example, one of ordinary skill is motivated to avoid implementing the combination, even if he or she recognized the advantage, and so no motivation exists to combine the references. In the case at hand, the Examiner has not provided any reason why one of ordinary skill would have a reason to implement the proposed advantage. For this reason, the Examiner's statement fails to provide a proper motivation to combine the references. Accordingly, the Examiner has failed to state a *prima facie* obviousness rejection.

Furthermore, no teaching, suggestion, or incentive based on the prior art has been pointed out to combine these two references. The "motivation" presented is based solely on the Examiner's statement and is without any teaching, suggestion or incentive based on the prior art. The Examiner's statement alone,

without any teaching, suggestion or incentive based on the prior art, is insufficient to combine these two references.

IV.A.4. The Proposed Combination Does Not Result in the Invention of Claims 2-7, 18-23, 34-39, and 50-55

The proposed combination of *Kothuri* and *Asherman* does not result in the invention of claims 2-7, 18-23, 34-39, or 50-55. As previously discussed, *Kothuri* contains the very problem that the present invention is directed towards solving.

Kothuri recites a relational database system for storing nodes of a hierarchical index of multi-dimensional data. *Kothuri*, Title. When a query is made to extract data from *Kothuri's* relational database, the query must search the entire database and determine whether each item in the database matches the query, even if the database contains no matching items. In contrast, the present invention solves this problem by creating a profile of the data store and using the profile to identify situations where a selected set of data items does not exist in the data store as claimed.

Because *Kothuri* contains the very problem the present invention is directed towards solving, the proposed combination of *Kothuri* and *Asherman* also contains the same problem. Therefore, the proposed combination does not result in the invention of claims 2-7, 18-23, 34-39, or 50-55. Therefore, the Examiner has failed to state a *prima facie* obviousness rejection against claims 2-7, 18-23, 34-39, and 50-55. Therefore, the rejection of claims 2-7, 18-23, 34-39, and 50-55 under 35 U.S.C. § 103(a) has been overcome.

IV.A.5. The Proposed Combination Does Not Result in the Invention of Claims 14, 30, 46, and 62

The Examiner has rejected claims 14, 30, 46, and 62 under 35 U.S.C. § 103(a) as being unpatentable over *Kothuri* in view of *Kolovson,* Fast Database Failover, U.S. Patent No. 5,951,695 September 14, 1999 (hereinafter "*Kolovson*"). This rejection is respectfully traversed.

The Office Action states:

> Claims 14, 30, 46 and 62 are rejected under 35 W.S.C. 103(a) as being unpatentable over Kothuri et al (US Patent 6505205) in the view of Kolovson (US Patent 5951695). Kothuri teaches all the limitations disclosed in claims 13, 29, 45 and 61 respectively, except for the plurality of disk storage devices including a redundant array of independent disks. Kolovson teaches a database set up into a Redundant Array of Independent disks (column 4, lines 38-47). It would have been obvious to one of the ordinary skill in the art during the time the invention was made, to use RAID set up for the database in order to minimize possible loss of the important data or/and increase the speed of the access time (wherein the specific advantages depend on specific RAID type).

Office Action, dated September 8, 2006, page 6.

As previously discussed, *Kothuri* contains the very problem the present invention is directed towards solving. Therefore, the proposed combination of *Kothuri* and *Kolovson* contains the problem the present invention is directed at solving, and the proposed combination does not result in the invention of claims 14, 30, 46, and 62. Therefore, the Examiner has failed to state a *prima facie* obviousness rejection against claims 14, 30, 46, and 62. Therefore, the rejection of claims 2-7, 18-23, 34-39, and 50-55 under 35 U.S.C. § 103(a) has been overcome.

V. Objection to Claims

The Examiner has stated that claims 16, 32, 48, and 64 were objected to because of the following informalities:

The Office Action states:

> The word "otherwise" causes the confusion as to the profile step being performed in the idle state or an active state. For the purposes of the examination Examiner considers the profile step to be performed in an active state.
> Appropriate correction is required.

Office Action, dated September 8, 2006, page 2.

In response, the claims have been rewritten to overcome this objection.

VI. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: December 8, 2006

Respectfully submitted,

/Theodore D. Fay III/

Theodore D. Fay III
Reg. No. 48,504
Yee & Associates, P.C.
P.O. Box 802333
Dallas, TX 75380
(972) 385-8777
Attorney for Applicants

TDF/sn